1. Find the unit vectors tangent to \( f(x) = 3x - 4 \) at the point \((2, 2)\).

Solution: Because the function is already a line, the tangent line at any point is simply the function itself. To find a vector parallel, find two points in tangent line. Choose \( x = 1 \) and \( x = 2 \) to get the points \( A = (1, -1) \) and \( B = (2, 2) \). The vector from \( A \) to \( B \) is \( \langle 1, 3 \rangle \), and the vector from \( B \) to \( A \) is \( \langle -1, -3 \rangle \). Dividing these vectors by their magnitudes gives the unit vectors \( \left\langle \frac{1}{\sqrt{10}}, \frac{3}{\sqrt{10}} \right\rangle \), and \( \left\langle -\frac{1}{\sqrt{10}}, -\frac{3}{\sqrt{10}} \right\rangle \). Note that if the function is not linear, one must first find the tangent line in order to find the unit tangent vectors.